Claims:

We claim:

1 1. A method for estimating a channel impulse response in an ultra wide

2 bandwidth (UWB) system comprising:

3 receiving a plurality of training sequences modulated at a chip rate;

4 sampling each training sequence in parallel with multiple correlators

5 at sampling rate substantially slower than the chip rate to obtain a plurality

6 of samples for each training sequence; and

7 estimating the channel over a time interval of the impulse response

8 from the plurality of sample of the plurality of sequences at a resolution

9 substantially equal to the chip rate.

1 2. The method of claim 1, in which each training sequence is passed through

2 n correlators to generate n samples for each correlator.

1 3. The method of claim 1, in which the sampling rate is at least ten times

2 slower than the chip rate.

1 4. The method of claim1, in which the sampling rate is equal to a symbol

2 rate.

1 5. The method of claim 1 further comprising:

2 estimating equalizer coefficients from the estimate of the channel

3 impulse response.

1   6. The method of claim 1 further comprising:

2   estimating weights for the corresponding correlators to acquire most

3   of the available energy of a data signal received via the estimated channel.

1   7. The method of claim 1, in which a first subset of the samples are for a

2   rough estimate, and a second subset of the samples are used for an accurate

3   estimate based on the rough estimate.

1   8. The method of claim 1, in which the estimate is based on a previous

2   estimate of the channel impulse response.

1   9. The method of claim 1, in which each correlator generates k sample,

2   where k is greater than one.